

Fig. 3 σ — Standard deviation of TIF (Curves 1 and 2)
 r — Ratio of standard deviations = (FA)/(MFA)
 N — Network size, number of nodes

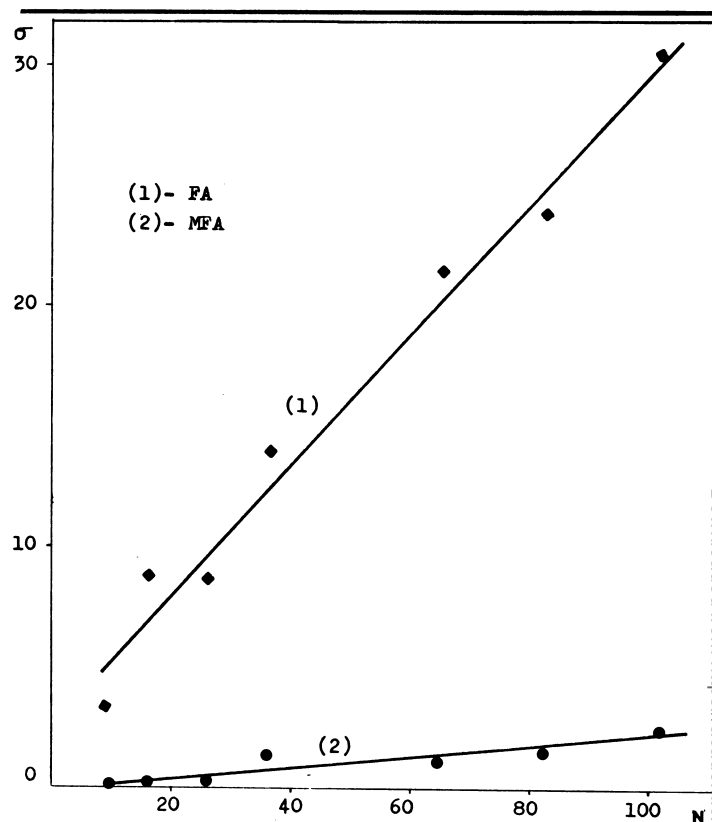


Fig. 4 σ — Standard deviation of NIF
 N — Network size, number of nodes

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Book review

Advances In Computer-Aided Manufacture, by D. McPherson, 1977; 467 pages. (North-Holland, \$44.95)

This is the proceedings of the third International IFIP/IFAC Conference on Programming Languages for Machine Tools (PRO-LAMAT 76) held in Stirling, Scotland from 15-18 June 1976. Despite the title of the conference, the papers in this volume are not at all restricted to programming languages; they range across the field of CAM from factory organisation to the measurement of the completed workpiece, and from the relatively theoretical to the applied. The papers are grouped into sections on NC programming systems, shape description and CAD interface, manufacturing systems and computer controlled machine tools, workshop planning and inspections by NC, and computational and theoretical aspects of CAD and CAM systems.

The first invited paper, 'Unmanned machine shop project in Japan' by Professor Yoshikawa, described a scheme which has no doubt advanced enormously since the paper was prepared. He describes the organisation and design of a completely unmanned

Central London and also the US European Research Office which partially supported this work.

machining, assembly and measuring section of a factory. A machining tool developing a fault would have the defective subunit removed and replaced for repair, presumably automatically. 'A continuous path microprocessor NC system' by Pritty points the immediate way for automatic manufacture—locating a processor in the machine itself. He points out that a microprocessor costs less than the emergency stop button on a machine, and the cost gap is widening. The tendency is for machining instructions to be generated in two stages: Initially breaking down the finished job into basic (macro) machining paths or operations, e.g. part of a circle, then generating the micro instructions defining the workpiece and machine tool movements. By placing 'intelligence' in the machine, instructions may be given at the macro level and each machine may then decode them to suit itself. Variables such as wear in the machine and cutting tool or a change in the workpiece material are easily managed.

The book is worth reading by anyone working or interested in the CAM field; however no papers seriously consider the wider implications of this technology.

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